

PATENT COOPERATION TREATY

RECEIVED

From the INTERNATIONAL SEARCHING AUTHORITY

To
BARRY R. LIPSITZ
LIPSITZ & MCALLISTER, LLC
755 MAIN STREET, BUILDING NO. 8
MONROE, CT 06468

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

OCT 06 2008

I.P. DEPT.
FOLEY & LARDNER

Date of mailing
(day/month/year)

Applicant's or agent's file reference
SOL-194 PCT 093196-1202

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.
PCT/US07/16812

International filing date
(day/month/year) 25 July 2007 (25.07.2007)

Applicant
VERANCE CORPORATION

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No : (41-22) 338.82.70

For more detailed instructions, see the notes on the accompanying sheet

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4 Reminders

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, within **20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site

Name and mailing address of the ISA/ US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (571) 273-3201

Authorized officer

Bhavesb Meta

Telephone No. (571) 272-2000

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
BARRY R. LIPSITZ
LIPSITZ & MCALLISTER, LLC
755 MAIN STREET, BUILDING NO. 8
MONROE, CT 06468

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference SOL-194 PCT		Date of mailing (day/month/year) 26 SEP 2008
FOR FURTHER ACTION See paragraph 2 below		
International application No. PCT/US07/16812	International filing date (day/month/year) 25 July 2007 (25.07.2007)	Priority date (day/month/year) 28 July 2006 (28.07.2006)
International Patent Classification (IPC) or both national classification and IPC IPC: G06K 9/00 (2006 01) USPC: 382/100		
Applicant VERANCE CORPORATION		

1 This opinion contains indications relating to the following items

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3 For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion 28 August 2008 (28.08.2008)	Authorized officer Bhavesh Meta <i>J. Roberts</i> Telephone No. (571) 272-2000 <i>for</i>
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Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No

PCT/US07/16812

Box No. 1 Basis of this opinion

- 1 With regard to the **language**, this opinion has been established on the basis of:
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
- 2 ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a)).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of
- a. type of material
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing
 - ☐ contained in the international application as filed
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit.
- ☐ paid additional fees
 - ☐ paid additional fees under protest and, where applicable, the protest fee
 - ☐ paid additional fees under protest but the applicable protest fee was not paid
 - ☒ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
See the lack of unity section of the International Search Report (Form PCT/ISA/210)

4. Consequently, this opinion has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos 1-25

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Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>3-25</u>	YES
	Claims <u>1-2</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-25</u>	NO
Industrial applicability (IA)	Claims <u>1-25</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Please See Continuation Sheet

WRITTEN OPINION OF THE
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient

V. 2. Citations and Explanations:

Claims 1-2 lack novelty under PCT Article 33(2) as being anticipated by Rhoads et al (US Patent No.: 6,744,906).

As to independent claim 1, Rhoads discloses a method for assessing continuity of a content using embedded watermarks (method for using multiple watermarks to determine authenticity or history of a electronic object, such as image, motion picture or audio - see column 1, lines 11-15), comprising: recovering the embedded watermarks from said content (see column 1, lines 60-67 - where first and second watermarks are recovered); identifying one or more attributes associated with said recovered watermarks (for e.g. power ratio - see column 4, lines 30-44); assessing a continuity of said content in accordance with said one or more attributes (determine whether the electronic object is original or copy - see column 2, lines 1-5).

As to claim 2, Rhoads teaches the method, wherein said attributes comprise the quality (see column 3, lines 34-46).

Claims 3-4 and 8-9 lack an inventive step under PCT Article 33(3) as being obvious over Rhoads et al (US Patent No.: 6,744,906) in view of Minerva et al (NPL Document titled: "An invisible watermarking technique for image verification").

As to claim 3, Rhoads does not expressly disclose the method, wherein said continuity assessment comprises determining a presence of at least one of cuts, insertions, and re-ordering of segments in said content. Minerva discloses an invisible watermarking method (see abstract) comprises determining a presence of at least one of cuts, insertions, and re-ordering of segments in said content (determine if the image has been altered, see abstract). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the method for using multiple watermarks of Rhoads with the invisible watermarking of Minerva as a part of an image or a document verification process to determine whether the image or document has been altered and if the image or document has been altered, localizing the alteration, thus ensuring data integrity (see section 4)

As to claim 4, note the discussion above, Minerva teaches the method wherein said continuity assessment comprises determining an amount of at least one of cuts, insertions and re-ordering of said content (see section 2, [p][002], lines 8-16)

As to claim 8, note the discussion above, Minerva teaches the method wherein, further comprising determining a presence of spuriously captured watermarked segments (see page 682, section 2, [p][007], lines 7-13)

As to claim 9, note the discussion above, Minerva teaches the method wherein said determining comprises

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

comparing an extent of recovered watermarked content to an extent of original watermarked content (see page 682, section 2, [p][007], lines 7-13).

Claims 5-7, 10-11 and 16 lack an inventive step under PCT Article 33(3) as being obvious over Rhoads et al (US Patent No. 6,744,906) in view of Op De Beeck et al (US Patent No. 6,671,388).

As to independent claim 10, all the limitations are discussed above except; determining a heartbeat of the recovered watermarks. Rhoads does not specifically disclose determining a heartbeat of the recovered watermarks. Op De Beeck disclose a method for detecting embedded watermark which includes the step of determining a heartbeat of the recovered watermarks (see column 1, lines 55-65 – where the periodicity of a data pattern is determined). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add the watermark detecting method of Op De Beeck to the method for using multiple watermarks of Rhoads to determine whether a data pattern in a processed image corresponds to a give watermark so that the manipulation, such as scaling, rotation or stretching, done to a suspect image can be undone (column 1, lines 65-67 and column 2, lines 1-4).

As to claim 11, note the discussion of claim 4 above.

As to claim 5 note the discussion above, Op De Beeck teaches the method wherein, wherein said continuity assessment comprises determining an amount of inserted segments with no watermarks (see column 4, lines 55-67 and column 5, lines 1-45).

As to claim 6 note the discussion above, Op De Beeck teaches the method wherein said continuity assessment comprises determining an amount of inserted segments that comprise embedded watermarks (see column 4, lines 55-67 and column 5, lines 1-45).

As to claim 7 note the discussion above, Op De Beeck teaches the method wherein said continuity assessment is conducted in a presence of content scaling (see column 1, lines 48-55).

As to claim 16, note the discussion of claim 8 above.

Claims 12-15 lack an inventive step under PCT Article 33(3) as being obvious over Rhoads et al (US Patent No. 6,744,906) in view of Minerva et al (NPL Document titled: "An Invisible watermarking technique for image verification") further in view of Op De Tsai et al (NPL Document titled: "Wavelet Packet and Adaptive Spatial Transformation of Watermark for Digital Image Authentication").

As to claim 12, Rhoads does not expressly disclose the method, wherein, wherein said recovered watermarks comprise packet numbers and said assessing is conducted in accordance with said packet numbers. Tsai discloses a wavelet packet watermarking method wherein said recovered watermarks comprise packet numbers and said assessing is conducted in accordance with said packet numbers (see page 452, section 2, [p][006]). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the method for using multiple watermarks of Rhoads with the wavelet packet watermarking method of Tsai to efficiently embed a watermark as a meaningful and recognizable seal image within images and provide robustness for the watermark detection under attacks by using a modular based element classification and adjustment of wavelet transformed coefficients, thus the watermark provides immediate strong authentication information (see abstract).

As to claim 13, note the discussion above, Tsai teaches the method, wherein an amount of content re-ordering is determined in accordance with said packet numbers (see page 452, section 2, [p][006]).

As to claim 14, note the discussion above, Tsai teaches the method, wherein said packet numbers are embedded as payloads of independently recoverable watermarks (see pages 450-452, section 2).

As to claim 15, note the discussion above, Tsai teaches the method, wherein said packet numbers are embedded as part of a larger payload of the embedded watermarks (see pages 450-452, section 2).

Claims 17 and 19-21 lack an inventive step under PCT Article 33(3) as being obvious over Rhoads et al (US Patent No. 6,744,906) in view of Kalker et al (Pub No. US 2003/0190055).

As to independent claim 17, all the limitations are discussed above except; determining a density and separation of said recovered watermarks; and assessing a continuity of said content in accordance with said density and separation. Rhoads does not specifically disclose determining a density and separation of said recovered watermarks. Kalker discloses a method for payload detection (see [p][0001]) which includes the steps of determining a density and separation of said recovered watermarks (see [p][0032] and [p][0005]). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add the method for payload detection of Kalker to the method for using multiple watermarks of Rhoads to identify neighborhood in which correlation functions resemble each other most thus determining distance between the identified neighborhood (see [p][0007], lines 5-9).

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

As to claim 19, note the discussion above, wherein said distributions are defined in accordance with content usage policies (see column 3, lines 46-61).

As to claim 20, note the discussion of claim 4 above.

As to claim 21, note the discussion of claim 8 above.

Claims 18 lack an inventive step under PCT Article 33(3) as being obvious over Rhoads et al (US Patent No. 6,744,906) in view of Kalker et al (Pub No.: US 2003/0190055) further in view of Petrovic (US Patent No. 6,430,301).

As to claim 18, Rhoads does not expressly disclose the method, wherein said continuity assessment comprises determining whether said density and separation conform to one or more predefined distributions. Petrovic discloses a method for embedding and detecting digital watermarks wherein said continuity assessment comprises determining whether said density and separation conform to one or more predefined distributions (see column 3, lines 46-61). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the method for using multiple watermarks of Rhoads with the method for embedding and detecting digital watermarks of Petrovic to protect each copy of a content with a unique code, i.e. transaction code, and by using this transaction code, it is possible to identify a user that obtained a legitimate copy of the content (column 2, lines 57-67).

Claims 22-25 lack an inventive step under PCT Article 33(3) as being obvious over Rhoads et al (US Patent No. 6,744,906).

As to independent claim 22, all the limitations are discussed above except; determining a stego key associated with said recovered watermarks; and assessing a continuity of said content in accordance with said recovered stego key and an embedding stego key. Rhoads does not expressly disclose determining a stego key associated with said recovered watermarks; and assessing a continuity of said content in accordance with said recovered stego key and an embedding stego key.

As to claim 24, note the discussion of claim 4 above.

As to claim 25, note the discussion of claim 8 above.

Claims 1-25 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

CHAPTER I
PCT TELEPHONE MEMORANDUM
FOR
LACK OF UNITY OF INVENTION



PCT No.: PCT/US07/16812

Examiner: ANDRAE S. ALLISON

Attorney spoken to: MCALLISTER, DOUGLAS (Reg No.: 37886)

Date of call: 21 May 2008

- ☐ Amount of payment approved:
- ☐ Deposit account number to be charged:
- ☐ Attorney elected to pay for ALL additional inventions
- ☐ Attorney elected to pay only for the additional inventions covered by
- ☐ Group(s):
- encompassing --
- ☐ Claim(s):

- ☒ Attorney elected NOT to pay for any additional inventions, therefore, only the first claimed invention (Group I) covered by Claim(s) 1-25 has been searched.
- ☒ Attorney was orally advised that there is no right to protest for any group not paid for.
- ☒ Attorney was orally advised that any protest must be filed no later than 1 month from the mailing of the Search Report (PCT/ISA/210).

Time Limit For Filing A Protest

Applicant is hereby given 1 month from the mailing date of this Search Report in which to file a protest of the holding of lack of unity of invention. In accordance with PCT Rule 40.2, applicant may protest the holding of lack of unity only with respect to the group(s) paid for.

Detailed Reasons For Holding Lack of Unity of Invention:

Please See Continuation Sheet

Note: A copy of this form must be attached to the Search Report.

ATTACHMENT TO CHAPTER I PCT TELEPHONE MEMORANDUM FOR LACK OF UNITY OF INVENTION

Continuation of Detailed Reasons For Holding Lack of Unity of Invention:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-25, drawn to assessing continuity of a content using embedded watermarks.
Group II, claims 26-32, drawn to assessing continuity of a content using embedded watermarks.
Group III, claims 33-37, drawn to assessing continuity of a content using sparsely embedded watermarks.
Group IV claims 38-43, drawn to assessing continuity of a content using embedded watermarks.
Group V claims 44-49, drawn to assessing continuity of a content using redundantly embedded watermarks.
Group IV claims 50-55 drawn to assessing continuity of a content using fingerprints and embedded watermarks.
Group VII claims 56-65, drawn to assessing continuity of a transmitted content using embedded watermarks.
Group VIII claims 66-77, drawn to determining an extent of watermarked segments within content.
Group IX claims 78-85, drawn to managing an Internet content using embedded watermarks.

The inventions listed as Groups I -IX do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of Group I claims is recovering the embedded watermarks from said content and this feature is not present in Group II. : The special technical feature of Group II claims examining channel bits associated with said recovered watermarks to extract signal continuity information and this feature is not present in Group III. The special technical feature of Group III claims recovering the embedded watermarks from two or more independently recoverable watermark series in said content and this feature is not present in Group VI. The special technical feature of Group IV claims recovering the embedded watermarks from two or more staggered layers in said content and this feature is not present in Group V. The special technical feature of Group VI claims calculating a fingerprint associated with said content and this feature is not present in Group VII. The special technical feature of Group VII claims retrieving information stored at a database in accordance with the recovered watermarks and this feature is not present in Group VIII. The special technical feature of Group VIII claims recovering the embedded watermarks from one or more segments of said content and this feature is not present in Group IX. The special technical feature of Group IX claims recovering the embedded watermarks from said Internet content and this feature is not present in Group I. Therefore unity of invention is lacking.

Note: A copy of this form must be attached to the Search Report.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference SOL-194 PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below	
International application No PCT/US07/16812	International filing date (<i>day/month/year</i>) 25 July 2007 (25.07.2007)	(Earliest) Priority Date (<i>day/month/year</i>) 28 July 2006 (28.07.2006)
Applicant VERANCE CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☐

It is also accompanied by a copy of each prior art document cited in this report.

I. Basis of the Report

a. With regard to the **language**, the international search was carried out on the basis of:

☒
☐

the international application in the language in which it was filed.

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 Rule 43.6 *bis(a)*

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☒ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**.

☒
☐

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒
☐

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 19

☐
☐
☒

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure

as selected by this Authority, because this figure better characterizes the invention

b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely
2. ☐ Claims Nos.
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically,
3. ☐ Claims Nos.
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows.
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos. 1-25

- Remark on Protest**
- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
 - ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
 - ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No

PCT/US07/16812

A CLASSIFICATION OF SUBJECT MATTER

IPC: G 06K 9/00

USPC: 382/100

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S.: 382/100, 232, 713/176, 179, 181, 386/94; 380/201, 218, 252, 54, 22; 348/461, 463, 467, 473

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	US 6,744,906 B2 (Rhoads et al) 1 June 2004 (01.06.2004), column 1, lines 11-15, lines 60-67, column 2, lines 1-5, column 3, lines 34-46.	1-2
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Y		3-25
Y	US 6,671,388 B1 (Op De Beeck et al) 30 December 2003 (30.12.2003), column 1, lines 55-67, column 4, 55-67.	5-7, 10-11, 16
Y	US 2003/0190055 A1 (Kalker et al) 9 October 2003 (09.10.2003), [p][0001], [p][0005], [p][0032], [p][0007], lines 5-9.	17, 19-21
Y	US 6,430,301 B1 (Petrovic) 6 August 2002 (06.08.2002), column 3, lines 46-61, column 2, lines 57-67.	18
Y, P	US 7,197,368 B2 (Kirovski et al) 27 March 2007 (27.03.2007), column 1, lines 10-12, column 10, lines 46-67, column 3, lines 5-25, column 8, lines 40-67.	22-25
Y	Yeung et al, "An Invisible Watermarking Technique for Image Verification", 1997, pages 680-683, <http://www.visionbib.com/bibliography/char993.html#TT82252>, section 4.	3-4, 8-9

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

Special categories of cited documents.	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"Z" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
28 August 2008 (28.08.2008)

Date of mailing of the international search report

26 SEP 2008

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (571) 273-3201

Authorized officer

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US07/16812

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	Tsai et al. "Wavelet packet and adaptive spatial transformation of watermark for digital image authentication", IEEE, Image Processing, 2000 Proceedings 2000 International Conference on, Publication Date: 2000, Volume 1, On page(s): 450-453 Vol 1, abstract, page 452, section 2, pages 450-452, section 2.	12-15

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BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

- Group I, claims 1-25, drawn to assessing continuity of a content using embedded watermarks.
- Group II, claims 26-32, drawn to assessing continuity of a content using embedded watermarks.
- Group III, claims 33-37, drawn to assessing continuity of a content using sparsely embedded watermarks.
- Group IV claims 38-43, drawn to assessing continuity of a content using embedded watermarks.
- Group V claims 44-49, drawn to assessing continuity of a content using redundantly embedded watermarks.
- Group VI claims 50-55 drawn to assessing continuity of a content using fingerprints and embedded watermarks.
- Group VII claims 56-65, drawn to assessing continuity of a transmitted content using embedded watermarks.
- Group VIII claims 66-77, drawn to determining an extent of watermarked segments within content.
- Group IX claims 78-85, drawn to managing an Internet content using embedded watermarks.

The inventions listed as Groups I-IX do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of Group I claims is recovering the embedded watermarks from said content and this feature is not present in Group II. The special technical feature of Group II claims examining channel bits associated with said recovered watermarks to extract signal continuity information and this feature is not present in Group III. The special technical feature of Group III claims recovering the embedded watermarks from two or more independently recoverable watermark series in said content and this feature is not present in Group VI. The special technical feature of Group IV claims recovering the embedded watermarks from two or more staggered layers in said content and this feature is not present in Group V. The special technical feature of Group V claims calculating a fingerprint associated with said content and this feature is not present in Group VII. The special technical feature of Group VII claims retrieving information stored at a database in accordance with the recovered watermarks and this feature is not present in Group VIII. The special technical feature of Group VIII claims recovering the embedded watermarks from one or more segments of said content and this feature is not present in Group IX. The special technical feature of Group IX claims recovering the embedded watermarks from said Internet content and this feature is not present in Group I. Therefore unity of invention is lacking.